

IN THE CLAIMS:

LISTING OF CURRENT CLAIMS

Claims 1-18. (Canceled)

Claim 19. (Currently Amended) An electropolishing device for electropolishing an inner surface of a long tube comprising:

- 5 a) a fixed magnet mechanism having a plurality of fixed magnets, each of the plurality of fixed magnets positioned with a long side parallel with an axis of the long tube;
- 10 b) first and second partitions located such that the fixed magnet mechanism is located between and axially aligned with the first and the second partitions;
- 15 c) a cable connected to a first power supply;
- d) at least one electrode connected at a first end to the cable and at a second end to the first partition, the at least one electrode located in an interior of the long tube, the cable providing a direct current to the at least one electrode;
- 20 e) a driving apparatus connected to a second power supply and having a plurality of outer electromagnets positioned around an outer periphery of the tube, the plurality of outer magnets generating an electromagnetic force that positions the fixed magnet mechanism within the tube and rotates the fixed magnet mechanism and the first and the second partitions on the axis of the tube; and
- 25 f) an axial driven mechanism moves the driving apparatus along the axis of the tube, the axial movement of the driving apparatus and the rotation of the fixed magnet mechanism and the first and the second partitions are performed simultaneously, such that a flow of an electrolyte and the movement of the electrode through the tube electropolishes the inner surface of the long tube; and

g) a screw structure connected to the second partition opposite the fixed magnet mechanism.

Claim 20. (Previously Presented) The electropolishing device according to claim 19, wherein the first and second partitions are made of a material without electric conductivity.

Claim 21. (Previously Presented) The electropolishing device according to claim 19, wherein each of the partitions has a plurality of slots formed on an outer periphery such that the electrolyte flows between the plurality of slots and the inner surface of the long tube.

Claim 22. (Previously Presented) The electropolishing device according to claim 19, wherein each of the partitions has a plurality of holes through which the electrolyte flows.

Claim 23. (Canceled)

Claim 24. (Previously Presented) The electropolishing device according to claim 23, wherein the screw structure is selected from the group consisting of a propeller and a screw slideway.

Claim 25. (Previously Presented) The electropolishing device according to claim 19, wherein the driving apparatus is an electromagnet apparatus, the plurality of outer electromagnets are driven and the plurality of fixed magnets are rotated when the driving apparatus is connected to the second power supply.

Claim 26. (Previously Presented) The electropolishing device according to claim 19, wherein the driving apparatus is an rotational apparatus, the plurality of outer electromagnets are driven by a direct mechanical transmission and the

plurality of fixed magnets are rotated when the driving apparatus is connected to the second power supply.

Claim 27. (Currently Amended) An electropolishing device for electropolishing an inner surface of a long tube comprising:

- a) a fixed magnet mechanism having a plurality of fixed magnets, each of the plurality of fixed magnets positioned with a long side parallel with an axis of the long tube;
- b) first and second partitions located such that the fixed magnet mechanism is located between and axially aligned with the first and the second partitions;
- c) a plurality of closed fillisters spaced apart on an outer periphery of the second partition, each of the plurality of closed fillisters having a flexible element and a protruding object with an abrasive, the abrasive of the each protruding object extending outwardly beyond the outer periphery of the second partition and contacting the inner surface of the long tube for grinding, each flexible element pressing one abrasive of the protruding object outwardly toward the inner surface of the long tube for grinding;
- d) a cable connected to a first power supply;
- e) at least one electrode connected at a first end to the cable and at a second end to the first partition, the at least one electrode located in an interior of the long tube, the cable providing a direct current to the at least one electrode;
- f) a driving apparatus connected to a second power supply and having a plurality of outer electromagnets positioned around an outer periphery of the tube, the plurality of outer magnets generates an electromagnetic force that positions the fixed magnet mechanism within the tube and rotates the fixed magnet mechanism and the first and the second partitions on the axis of the tube; and

30 g) an axial driven mechanism moves the driving apparatus along the axis of the tube, the axial movement of the driving apparatus and the rotation of the fixed magnet mechanism and the first and the second partitions are performed simultaneously, such that a flow of an electrolyte and the movement of the electrode through the tube electropolishes the inner surface of the long tube.

Claim 28. (Previously Presented) The electropolishing device according to claim 27, wherein the first and second partitions are made of a material without electric conductivity.

Claim 29. (Previously Presented) The electropolishing device according to claim 27, wherein the first partition has a plurality of slots formed on an outer periphery such that the electrolyte flows between the plurality of slots and the inner surface of the long tube.

Claim 30. (Previously Presented) The electropolishing device according to claim 27, wherein the flexible element is a spring.

Claim 31. (Previously Presented) The electropolishing device according to claim 27, wherein the protruding object is a thimble.

Claim 32. (Previously Presented) The electropolishing device according to claim 27, wherein the abrasive is made of Al_2O_3 .

Claim 33. (Previously Presented) The electropolishing device according to claim 27, wherein the driving apparatus is an electromagnet apparatus, the plurality of outer electromagnets are driven and the plurality of fixed magnets are rotated when the driving apparatus is connected to the second power supply.

Claim 34. (Previously Presented) The electropolishing device according to claim 27, wherein the driving apparatus is an rotational apparatus, the plurality of outer electromagnets are driven by a direct mechanical transmission and the plurality of fixed magnets are rotated when the driving apparatus is connected to the second power supply.

Claim 35. (Previously Presented) The electropolishing device according to claim 27, wherein the first partition has a plurality of holes through which the electrolyte flows.